

What is claimed is:

1. An apparatus for measuring biodegradability of polymer sample, comprising:

5 a compression pump for compressing air;

a first air controlling unit connected to the compression pump so as to control a flow rate and pressure of compressed air discharged from the compression pump;

a carbon dioxide removing device connected to the first air controlling unit so as to remove carbon dioxide from the compressed air;

10 a filter connected to the carbon dioxide removing device so as to remove contaminating materials from the carbon dioxide-removed air;

a first cooling device connected to the filter so as to cool the air passed through the filter;

15 at least two composting vessels connected to the first cooling device so as to receive the air passed through the first cooling device, one of the composting vessels containing the biodegradable polymer sample and compost, and the other composting vessels containing only compost;

at least two second cooling devices respectively connected to the composting vessels so as to cool the air discharged from the composting vessels;

20 at least two second air controlling units respectively connected to the second cooling devices so as to control flow rates of the air discharged from the second cooling devices;

at least two non-dispersive infrared gas analyzers respectively connected to the second air controlling units so as to measure concentrations of carbon dioxide in the air 25 discharged from the second air controlling units;

collection units respectively connected to the gas analyzers so as to collect the air passed through the gas analyzers; and

5 a computer connected to the first air controlling unit, the second air controlling units and the composting vessels so as to receive data therefrom, and further connected to the gas analyzers so as to interchange data therewith.

2. The apparatus as set forth in claim 1, wherein the first air controlling unit comprises a needle valve, a flow meter, a manometer, and a check valve.

10 3. The apparatus as set forth in claim 1, wherein each of the second air controlling units comprises a needle valve and a flow meter.

15 4. The apparatus as set forth in claim 1, wherein the carbon dioxide removing device comprises a vessel containing a sodium hydroxide solution and equipped with a stirrer.

5. A method of measuring biodegradability of a polymer sample, comprising the steps of:

20 filling the polymer sample and inoculum in one composting vessels of at least two composting vessels maintained at a constant predetermined temperature, and filling only inoculum in the other composting vessels, and compressing external air;

removing carbon dioxide in the compressed air of the above step (i);

25 removing contaminating materials from the carbon dioxide-removed air of the above step (ii);

cooling the contaminating materials-removed air of the above step (iii);

decomposing the polymer and the compost filled in the composting vessels by microorganisms under an aerobic atmosphere by inflow of the cooled air of the above step (iv) to each of the composting vessels;

5 cooling air containing carbon dioxide produced from each of the composting vessels of the above step (v);

measuring a concentration of carbon dioxide contained in each of the cooled air of the above step (vi), by non-dispersive infrared spectrometry;

transmitting the concentration data of carbon dioxide measured in the above step

10 (vii) to a computer, to calculate biodegradability; and

separately collecting carbon dioxide-containing air discharged after the above step (viii).